

# Establishing a system for intellectual capital measuring and reporting

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**Abstract:** *The strategy of modern companies is shifting from the competitive positioning of the industrial structure to the business processes and internal factors that are specific to the company itself, such as different training and knowledge of employees, business culture, know-how, innovation learning skills, organizational climate, administrative skills, reputation. Unlike the previous period, in which the creation of values was directly dependent on the financial and available quantity of physical assets, while now in the era of knowledge, the emphasis is on the quality of knowledge and skills that will be incorporated into the final effects. This paper highlights the importance of intellectual capital for the company in contemporary conditions, its structure, its measurement. The focus is on processes and a model is shown -indicating the steps to be taken during the measurement of intellectual capital. A model of reporting on intellectual capital was also proposed.*

**Key words:** Intellectual capital, system approach, performance measuring, KPI, IAS 38

## Introduction

In modern conditions, in the so-called, The knowledge economy, the driver of change and the source of the company's competitive advantage is intellectual capital. The new conditions impose different business rules and require that about values have to be thought differently. Knowledge as the only resource that is unlimited is the most important asset for the company for achieving competitive advantage. Adequate knowledge management in the company makes more successful business. Not the wealthiest are enterprises that have the greatest material wealth, but the ones that have knowledge in their possession and which they manage adequately. Although measurement and management of intellectual capital is a much more complex process than it is at first thought, it is noticeable that all developed countries in the world base their development strategy on the expansion of intellectual capital, which is the key to securing competitive advantage.

The concept of intellectual capital (IC) is not a novelty in accounting literature. Although there are number of models in the literature dealing with determining the elements (structure) and the value of intellectual capital, but still, there is little consensus regarding structured approach in establishing a system for measuring intellectual capital in an organization.

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The paper is conceptualized in the following way: after the introduction, the importance of measuring intellectual capital in contemporary organizations is briefly explained, then the term intellectual capital is explicitly explained, and a review of some IC models, after which is proposed a new, structured approach for establishing a measurement and reporting system for the IC. One of the phases of this approach is IC Reporting, within which a proposal for an additional IC report form is given. After that, concluding observations and directions for further research are mentioned.

### **The importance of measuring intellectual capital in modern business**

The basic source of value creation and the sustainable competitive advantage of modern companies is knowledge and resources based on knowledge. Intellectual capital of the enterprise does not only mean knowledge, it also implies competences related to the systematization of competences in terms of structuring knowledge and skills in order to realize business activities in the company. The basic concepts for building key competences and their direction towards creating added value, which together form the concept of intellectual capital are: the framework of intellectual capital, the framework of strategic architecture, the framework of key competences, the framework of operationalization of the concept of intellectual capital, the framework of change management (Komnenić, 2013).

The aim of the formulation of strategic architecture is reflected in the connection between the present and the future by linking the short-term activities of the company with the set long-term strategy. It indicates on which basic skills attention should be paid to and the ways of independent development. Strategic architecture and its designation are used to a considerable extent by employees in order to set priorities. The essence of an enterprise is to utilize its specific abilities to exploit market opportunities or neutralize threats that arise from a competitive environment.

Indication of the content and processes related to identification, evaluation and assumptions associated with the company's basic capabilities are reflected in the Key Competency Framework. In this way it contributes to the increase and development of organizational skills in the sense of determining what are the activities that will contribute to long-term business success and determine the capabilities that are basic to achieving competitive advantage.

Since all abilities within the company are not developed in the same way, it is necessary to identify those who are in relation to those who are not, and in this way the basis will be created for creating a specific combination of skills that the enterprise will differentiate with regard to the competitors. It is necessary to establish indicators for each basic ability of the enterprise. Indicators should be the subject of measuring the basic skills of the company. It is necessary to monitor the state of development of each basic ability and that is way of creating a basic portfolio of key competences of the company.

Since the framework of key competences is static, it is necessary to develop a dynamic way of tracking the relationship between different key competences. The system mode of tracking the interaction between key competencies is a management process that adds value by itself, because it enables the monitoring of interactions between individual abilities and synergetic effects that are the product of these interactions. Management thus acquires information on how to build the best combinations of basic skills that represent the greatest potential for value creation. (Wall et al, 2004).

New sources of competitive advantage highlighted the conceptual framework of company competence. In addition to the key competencies of the company itself, its basic resources that determine the competitive advantage are also important. Within basic resources, the ability to innovate is important, because it represents a resource of penetration.

The unique integral unity of the concept of intellectual capital is only defining of intellectual capital, the strategic and operational management of it, and the measurement of its key components. The basic intention of the concept of intellectual capital is to give guidance on how to develop the key capabilities that make up intellectual capital, how to measure their contribution and how to manage its growth. The concept of intellectual capital focuses on the development of mechanisms for monitoring interactions between value-creating resources.

The number of employees, their expertise, their knowledge, their reputation, and their distribution to certain business tasks are not just personal of the companies, from which require a certain amount of work, but the human capital with which the company disposes with other factors of production. Human capital is treated as equity precisely because it contributes to the reproduction of total engaged capital. Human capital represents knowledge, skills and competencies of employees in the company. In order to manage human capital in an adequate manner, management of the company should encourage employees to present their ideas, to evaluate them in an appropriate way and motivate them, not to punish them for their mistakes, acknowledge their mistakes, and to understand them as inevitable.

Managers constantly need to look for answers to the appropriate questions, such as what and how much it knows in the company, who needs additional knowledge, whether they systematically transfer the knowledge inside or outside the company, whether they are following modern knowledge, competition, etc. Adequate knowledge management helps the company to become more effective and make the right business decisions. At four levels of knowledge the professional intellect of the organization is concerned: cognitive knowledge (know-what), advanced skills (know-how), understanding of the system (know-why) and self-motivating creativity (care-why) (Quinn et al, 1998).

Adequately managing knowledge in the company allows for increased innovation, increase of efficiency and effectiveness, faster discovery of new knowledge, transfer of individual into organizational knowledge. Knowledge of employees transforms the existing value into a new value on the market. There may be a capable workforce in the market, but if it fails to sell its knowledge in any market then its knowledge can not be called intellectual capital. Then it is only the potential of intellectual capital (Šarčević, 2013).

The goal of measuring intellectual capital is to strive to explain the difference between the bookkeeping and market value of the company, as well as to discover those hidden values that most contribute to the achievement of business goals of the company and the creation of new value added. Only the measurement of intellectual capital is very important for a more successful managing of this very important non-material resource. His evaluation is also important to determine the real value of the company, and also to determine how much the company invests and whether it invests enough in intellectual resources. As (Jednak & Kragulj, 2015) emphasize: capital, labour and natural resources are traditional factors, and a new factors which are introduced are technology, human capital, knowledge and innovation.

### **Intellectual capital - definition, structure and models**

There are a number of IC definitions in the accounting litterature (Sullivan, 1999; Brennan & Connell, 2000; Edvinsson & Malone, 1997; Lev, 2001; Bontis, 1996; Miller, 1999; Bassi, 1997; Akpinar i Akdemir, 1999; Dobija, 2001.). According to Stewart, it can be said that the intellectual capital is collaborations, the joint learning of companies and its clients, that creates a strong link between them and which ensures their long-term successful business cooperation. He also explains intellectual capital as "something that can not be explained, but it slowly makes you rich." Roos points out that employees create intellectual capital through their competencies, attitudes and intellectual skills.

Regarding the components of intellectual capital, the following classification is generally accepted: (Petty & Guthrie, 2000; Dobija, 2001.)

Human capital whose basic components are:

- Capabilities of people, including professional experience, levels of education and skills, training methods and management education, and
- Learning capabilities, including knowledge sharing, problem solving capability, management skills, training groups, entrepreneurship, leadership and growth data.

Structural capital - with three basic components:

- Infrastructure, which includes processes, IT systems and databases, communication systems, financial structure and operations models.
- Intellectual property, including patents, protected rights, trademarks and trade secrets, design rights, service marks and
- Corporate culture, which includes management philosophy, management processes, information systems, networking systems, financial relations, recognitions and awards and management structure.

Reational (customer) capital - consists of the following components:

- Clients, which include individual clients, sales channels and distribution channels, customer loyalty,
- Marks, which include production marks (trademarks), service marks, company names and distribution channels, business collaborations, and
- Contracts, including franchising contracts, license agreements and other contracts.

Intellectual capital encompasses the models, strategies, unique approaches and mental methodologies organizations use to create, compete, understand, problem-solve and replicate (Bell, 1997). There are a large number of methods, models and frameworks in the literature, when it comes to IC dimensions that should be measured. Some of them are: *Intellectual capital audit* (Brooking, 1996), *Intellectual capital – index* (Roos et al., 1997), *Skandia Navigator* (Edvinsson & Malone, 1997), *Holistic value approach* (Pike & Roos, 2000), *Sullivan's work* (Sullivan, 2000), *Value-Added Intellectual Coefficient™* (Pulic, 2000), *Inclusive Value Methodology™* (M'Pherson & Pike, 2001), *Intellectual capital benchmarking system* (Viedma, 2001), *Intellectual capital dynamic value* (Bounfour, 2002), *EIC methodological Framework* (Krstić & Bonić, 2016), etc.

Methods of measurement can be roughly divided into two groups that measure intellectual capital with financial (quantitative) indicators and those that measure intellectual capital with non-financial indicators. Financial indicators are most often used in the preparation of financial statements, and non-financial indicators are used for internal purposes to control the development of intellectual capital. There is also a division of the methods of estimating intellectual capital at a given moment, so-called static methods, and methods that assess the level of investment in intangible assets over a certain period of time, i.e. dynamic methods.

There is another division of methods for measuring intellectual capital (Ienciu, 2011) to generic models (which are universally accepted): Balanced Scorecard, Prism performance, Knowledge Map, Access Value Added, Market Value Model, Tobin's Q, Baruch Lev model and Value added coefficient. Unlike the previous ones, individual models (they are individually created by some companies) are also present, which include the Skandia model, the Ericsson model, the Pilot cabin communicator, Celemi monitor for the intangible property (Sveiby), the Ramboll holistic model and the IQ company (Bates Gruppen).

Also, there are many papers with proposed specific (concrete) key performance indicators to be measured in order to evaluate the intellectual capital, or its parts (Krstić & Bonić, 2016; Dmitrović, 2015). As already mentioned, the concept of intellectual capital is not a new concept, and in the last few decades solid literature has been developed on the topic of its calculation, goal, purpose, and similar.

Bontis (1996) for example, proposed eight steps that organizations should follow in developing intellectual capital:

- Make knowledge management a requirement for evaluation purposes for each employee;
- Formally define the role of knowledge in business system and in industry;
- Assess competitors' and suppliers' strategies and knowledge assets;
- Determine the extent of intellectual capital resources available from government and industry associations;
- Classify intellectual portfolio by producing a "knowledge map" of organization;
- Evaluate the relative worth of the intellectual capital;
- Identify gaps you must fill based on weaknesses relative to competitors, customers and suppliers; and
- Assemble new knowledge portfolio in an intellectual capital addendum to annual report and continuously assess the development of intellectual capital.

Krstić and Bonić (2016) proposed three key steps in order to measure the IC performances:

- Formulating the IC strategies;
- Identification of the CSF of the IC strategy ; and
- KPI Identification for each IC strategy.

Krstić (2007) suggests that the company's intellectual capital should be managed, and suggests several key steps:

- Identifying and assessing the role of knowledge as a resource for the business of a particular company as input, process and output;
- Identify income generated by knowledge as a resource;
- Identify elements of a business strategy that should determine the investment and development of intellectual resources; and
- Improve the efficiency of the use of knowledge, i.e. intellectual resources of the company.

According to (Krstić, 2007), the IC management system implies "certain activities of decision making, information provisioning, work processes, that are organized as a unified stream or process that companies should use to systemally evaluate and "extracting" values from intellectual resources.

#### **Establishing a system for intellectual capital measuring and reporting - basic steps**

Based on the previous one, the basic phases can be identified, which every business system, regardless of the model that it adopts, needs to realize in order to create an efficient and effective system for measuring intellectual capital, and thus create the basis for managing intellectual capital.

(Figure 1).

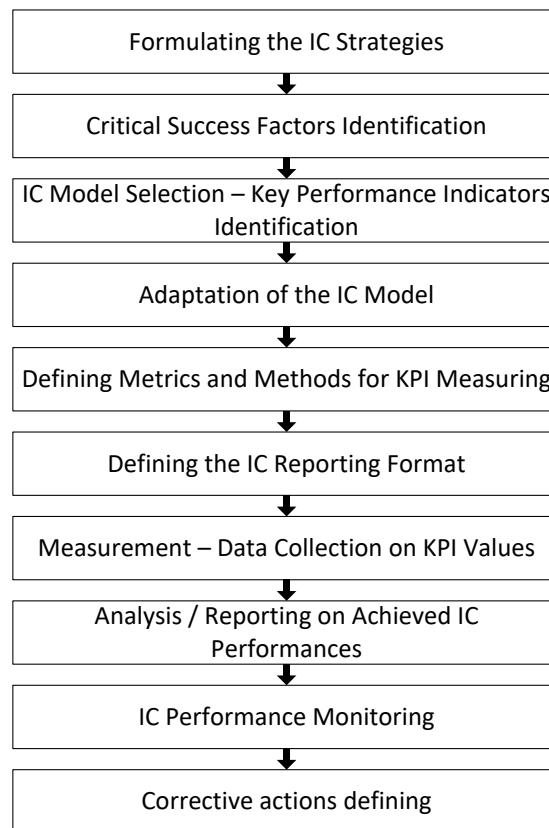


Figure 1. The process of establishing a system for measuring and reporting on intellectual capital

The first step, *Formulating the IC Strategies*, is significant so that short-term activities, which are realized in the company, are linked to a long-term business strategy, and thus ensure the fulfillment of the strategic goals of each business system.

Second step, *Critical Success Factors Identification of the IC strategy implementation*, involves *determination of* the intellectual factors that will have the greatest impact on the value creation and business success in the future period (Krstić and Bonić, 2016).

Since each business system has different baseline capabilities and different IC strategies, it is logical that not every IC model will suit each company. Therefore, as a third step in establishing the IC measurement and reporting system impose *IC Model Selection - Key Performance Indicators Identification*. According to (Parmenter, 2010), key performance indicators represent a quantitative measure, which is pre-projected/reprojected and reflects the critical success factors of a company. Since each business system is different, the implementation of the selected model requires certain business system adjustments in order to achieve the results, and *Adaptation of the IC model* is a logical fourth step on the way to establishing an IC measurement and reporting system. In this step, it is necessary to adapt the KPI to a specific business system, i.e. to the established IC strategy.

Within KPIs, organization must define KPI name, target value, way of calculation, measurement frequency, way of evaluation, how KPIs are interrelated, and the nature of their connection to the company's goals. So, it is necessary to *define metrics and methods for KPI measuring*. This includes definition of measures, performance targets (based on intellectual resources assessment, etc.), procedures for data collection, and measurement frequency. The company should also define measurement points, i.e. the points at which data is collected (by manual or automated means) for calculating KPIs (Radović et al, 2009).

In addition to metrics, it is also necessary to define the form of reporting on KPI related to intellectual capital. Since the law does not oblige reporting on the IC, companies themselves create their own IC reports. The most commonly reported IC reporting is through the so-called additional reports, which are attached to the mandatory financial statements, prescribed by law. Key characteristics of additional reports on intellectual capital are certainly transparency and clarity. Therefore, the necessary step in establishing a measurement and reporting system for IC is definitely *Defining of the IC reporting format*. A unique combination of structural elements, with the flexible ability to add missing segments in narrative form (which also affects the organization's intellectual capital values) is the way to create an additional report that aims to be helpful in determining the more objective organization's value. The literature provides suggestions on how the report should look like, and one of the proposals is shown in Table 1.

Table 1: Model of complementary report on intellectual capital (Dmitrović, 2015)

<b>REPORT ON INTELLECTUAL CAPITAL</b>		
<b>Elements</b>	<b>Amount/Description</b>	<b>Valorization</b>
Number of employees	XX	Quantitative
Number of highly educated employees	XX	Quantitative
Organization size	XX	Quantitative
Comparison with the average in the sector	Indicating positive and negative deviations	Descriptive and quantitative
Comparison with the best organization in the sector	Indicating positive and negative deviations	Descriptive and quantitative
Human capital	Indication of the leading components/characteristics of employees	Descriptive
Organizational capital	Specifying the comparative advantages of the organization-related elements	Descriptive and quantitative
Relational capital	Strength of the relationships with business partners, number and quality of connections	Descriptive and quantitative
The value of intellectual property	Financial expressed, number of patents, licenses, time dimensions, etc.	Quantitative
Innovation of products/services	Number of innovations annually by comparison with the average of the sector and the best organization from the industry	Descriptive and quantitative
Innovation of the process	Description of steps and expected effects	Descriptive and quantitative
Research & Development	Description of steps and expected effects	Descriptive and quantitative
Staff training	Dynamics, quality and future effect	Descriptive and quantitative



Knowledge transfer and internal communication	Frequency and quality	Descriptive and quantitative
Reward for the effort	Financial benefits	Descriptive and quantitative
Non-financial motivation of staff	Non-financial benefits	Descriptive and quantitative
Leadership	Leadership styles, description of attitudes towards employees	Descriptive
Speed of decision making	Representation of key business decisions	Descriptive
Speed of adaptation to changes	Overview of crisis and common situations	Descriptive
Corporate culture	Presentation of the organization on the market - image	Descriptive
Represented ethics in the organization	Deviations from the rule/regulation	Descriptive

The first 6 steps represent the basis for measuring and reporting on the IC, and it can be said that they represent the architecture of the system. When are defined KPI, measuring points, calculation methods, and reporting forms, then it can be switched to the next stages, which are then continuously executed.

Next step is *Measurement – Data Collection on KPI values*. It is necessary to say that measurement itself consumes resources. That is why it is of great importance to minimize measurement. Company must ensure that measures arise (whenever possible) out of normal operational activity. ppp

Data collection is much more than simply writing things and then analyzing everything after a certain amount of time. Several preliminary analyzes should be carried out to determine whether the measuring system functions as it is designed, whether the frequency of data collection is appropriate, and to provide feedback in data collection (Bellman et al, 1994, Franceschini et al, 2007).

Measuring the performance of the process and organization should not be intended solely as a mere data collection in order to be compared with a predetermined goal, or as a set of separate models and tools. It must be observed, exclusively, as an overall management system that is focused on meeting the requirements of all stakeholders and continuous improvement.

*Analysis / Reporting on achieved IC performances* - In this step, raw data is formally converted into performance measures, shown in a comprehensible form, and distributed in a defined form of the report. The proposal is that the exit from this phase is just an additional IC report.

Obtained values of IC indicators should be compared with predefined targets, standards or reference values, and if there is a difference, it should decide whether a corrective action is needed or not. The output from this step is the decision on corrective actions based on the difference between the achieved performance and goals, standards or reference values. The *IC Performance Monitoring* activity takes place in time, and the obtained results serve as a basis for improving and managing performance and business as a whole. The information obtained is used to compare with the results from the previous measurements and with the set target values of the indicators. The results of the comparisons are further used to possibly redefine the strategy and reference IC values, creating the return loop and the P-D-C-A cycle (Simeunović, 2015).

If the corrective action is needed, it goes to the next step *Corrective Actions Defining* - when certain improvements should be designed and implemented, in order to increase the IC value. The output from this step is the action plan for implementing the changes.

### **Domains and limits on the measurement of intellectual capital in financial reporting**

Although there is no uniform standardization in the preparation of the report on intellectual capital, there are certain initiatives to regulate these issues. In response to the lack of information on intellectual resources, in 1998 the International Accounting Standards Board adopted International Accounting Standard 38 - Intangible Assets, which replaced International Accounting Standard 9 - Research and Development Expenditure. According to IAS 38 intangible assets are property without of a physical nature (substance) that can be identified. When recognizing an asset as an intangible asset, the general criteria of IAS 38 are: the probability that the future economic benefits attributable to those assets will flow (get) into the entity as well as the possibility of a reliable measurement of the cost of purchase value. In addition to the above mentioned conditions, it is necessary that these assets can be identified, sold, transferred, rented, licensed, exchanged with or without contract, etc.

According to IAS 38, intangible assets include trademarks, impressions and publishing titles, computer software, licenses and franchises, copyrights, patents and other industrial property rights, recipes, formulas and models and intangible property under development. IAS 38 was made precisely because of the increasing importance of knowledge, and therefore of intellectual capital. One of the contributions of IAS 38 is that it defined the difference between internally generated and externally acquired intangible assets.

Regulations relating to reporting on intellectual capital (According to the sources of the website of the Ministry of Finance of Serbia) are:

- The Danish legislation from 2001 requires companies to publish information on intellectual capital in their reports,
- The German Accounting Standard 12 of 2002 deals with intangible assets that are similar to IAS 38. According to him, reporting on intellectual capital is not an obligation, but it is recommended to be part of the financial statements,
- Reporting on the intellectual capital of Austrian universities, according to UG 2002. The idea of reporting on intellectual capital under the Law on the Reorganization of Austrian Universities was adopted and this report would be used by university management as well as would be the basis for communication between the university and the ministry,
- Meritum 2002 Guidelines is a framework developed by the European Commission to measure and control intangible assets,
- Nordic countries recommend that the report starts with an analysis of the company's shortcomings in order to determine what it is necessary to do, how to evaluate the intellectual capital,

- The Italian Association of Financial Analysts has developed the AIAF model in 2002 for the purpose of measuring relationships with intangible resources.

Throughout the world, companies in market-developed countries still publish information on intellectual capital on a voluntary basis, since this information is not a required part of the financial statements, as there are no relevant legislation.

## Conclusions

There is a multitude of evidence that indicates that the value of an enterprise substantially defines intellectual capital. Structural components of intellectual capital contribute to increasing the value of enterprises on the market only if there is synergy between them, i.e. mutual knowledge exchange. Investing in knowledge should therefore not be considered a cost, but it should be considered as an investment, because it is a key resource of the twenty-first century and brings great benefits in the future. But, the methods of measuring intellectual capital are quite unequal. This suggests that it is necessary to combine several models in order to avoid the subjectivity of the assessment. The scope of reporting on intellectual capital has not yet been fully regulated and there is no single standard governing this area. IAS 38 regulates the issue of tangible (material) intangible assets, while immaterial intangible assets are not regulated either by professional or legal regulations. For now, it remains for every company to strive to value their human potential more faithfully, because precisely the strength is in them for the progress of the company, i.e. creating new values in the future.

The paper presents the importance of measurement, reporting and managing of IC. A 9-step approach is proposed, which establish a system for intellectual capital measuring and reporting. Also, evaluation and reporting of intellectual capital is still an open issue in the accounting profession, and this research represents a contribution in this regard.

It is very important to regularly monitor and measure IC performance indicators and perform constant review of performance, primarily the key IC components. Only continuous efforts aimed at improving competence and maintaining the promptness of reporting can establish a successful system that will give results in the long run.

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